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NOTICE OF ALLOWANCE AND FEE(S) DUE

29062

7590

02/06/2009

VERENIUM CORPORATION
Intellectual Property Department
P.O. Box 910550
SAN DIEGO, CA 92191-0550

EXAMINER

SWOFFE, SHERIDAN

ART UNIT

PAPER NUMBER

1652

DATE MAILED: 02/06/2009

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/501,442 | 10/29/2005 | Janne Kerovuo | D2000-1WUS | 8134 |

TITLE OF INVENTION: PECTATE LYASES, NUCLEIC ENCODING THEM AND METHODS FOR MAKING AND USING THEM

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | YES | \$755 | \$300 | \$0 | \$1055 | 05/06/2009 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

29062 7590 02/06/2009

VERENIUM CORPORATION
Intellectual Property Department
P.O. Box 910550
SAN DIEGO, CA 92191-0550

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

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| nonprovisional | YES | \$755 | \$300 | \$0 | \$1055 | 05/06/2009 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|-----------------|----------|----------------|
| SWOPE, SHERIDAN | 1652 | 536-023100 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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VERENIUM CORPORATION
Intellectual Property Department
P.O. Box 910550
SAN DIEGO, CA 92191-0550

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/501,442

Applicant(s)

KEROVUO ET AL

Examiner

SHERIDAN SWOPE

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to September 25 and November 20, 2008.
2. ☒ The allowed claim(s) is/are 1,9,24,27,31,35,36,40,49,52,94,101,165,238-240 and 242-245.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Applicants' responses of September 25 and November 20, 2008, to the Action of March 25, 2008, are acknowledged. It is acknowledged that Claim 16 has been cancelled, Claims 1, 9, 24, 27, 31, 35, 36, 40, 49, 52, 101, and 165 have been amended, and Claims 242-245 have been added. Claims 1, 9, 24, 27, 31, 34-36, 40, 43, 45, 49, 51, 52, 54, 55, 61, 68, 81, 86, 87, 91, 93-95, 97-99, 101, 103, 106, 107, 111, 121, 123, 126, 136, 137, 141, 145, 146, 151, 153, 158, 164-166, 169, 170, 173, 174, 177-179, 190, 191, 194-197, 199, 201, 203-205, 208, 209, 212, 214-216, 218-221, 223-226, 229 and 231-233 and 236-245 are pending. Claims 34, 43, 45, 51, 54, 55, 61, 68, 81, 86, 87, 91, 93, 95, 97-99, 103, 106, 107, 111, 121, 123, 126, 136, 137, 141, 145, 146, 151, 153, 158, 164, 166, 169, 170, 173, 174, 177-179, 190, 191, 194-197, 199, 201, 203-205, 208, 209, 212, 214-216, 218-221, 223-226, 229 and 231-233 and 236, 237, and 241 were previously withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions. Claims 1, 9, 24, 27, 31, 35, 36, 40, 49, 52, 94, 101, 165, 238-240 and 242-245 are hereby examined.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Claims

Cancel Claims 34, 43, 45, 51, 54, 55, 61, 68, 81, 86, 87, 91, 93, 95, 97-99, 103, 106, 107, 111, 121, 123, 126, 136, 137, 141, 145, 146, 151, 153, 158, 164, 166, 169, 170, 173, 174, 177-

179, 190, 191, 194-197, 199, 201, 203-205, 208, 209, 212, 214-216, 218-221, 223-226, 229 and 231-233 and 236, 237, and 241.

Amend Claims 1, 27, 31, 35, 36, 40, 49, 52, 94, 101, 165, 238, 239, and 242-245 as follows.

For Claim 1, line 1, replace --nucleic acid-- with --nucleic acid molecule--.

For each of Claims 1(a) and (c), delete the phrase --90%, 91%, 92%, 93%, 94%--.

Replace Claim 1(e) with:

--(e) the nucleic acid sequence of (c) or (d) further comprising a heterologous sequence encoding a signal sequence, a catalytic domain, and/or prepro domain from a different pectate lyase operably linked to the nucleic acid sequence or encoding a signal sequence and/or prepro domain from a non-pectate lyase protein linked to the nucleic acid sequence.--

For Claim 27, line 3, delete the phrase --a sequence comprising--.

Replace Claim 31 with:

--Claim 31 An amplification primer sequence pair for amplifying a nucleic acid encoding a polypeptide having a pectate lyase activity, wherein the primer pair is capable of amplifying the nucleic acid molecule of claim 1 or claim 24, or a fragment thereof encoding a polypeptide with pectate lyase activity.--

For Claims 35, 36, 40, line 2, replace --the sequence-- with --the nucleic acid molecule--.

Replace Claim 49 with:

--Claim 49 An antisense oligonucleotide consisting of a nucleic acid sequence complementary to or capable of hybridizing under stringent conditions to the nucleic acid sequence of claim 1 or claim 24, or a fragment thereof

wherein the stringent conditions include a wash step comprising a wash in 0.2 times SSC at a temperature of about 65 degrees C. for about 15 minutes.--

Replace Claim 52 with:

--Claim 52 A double-stranded inhibitory RNA (RNAi) molecule comprising a fragment of the nucleic acid sequence of claim 1 or claim 24.--

Replace Claim 94 with:

--Claim 94 An array comprising the nucleic acid molecule of claim 1 or claim 24, wherein the nucleic acid molecule is immobilized.--

For Claim 101, line 4, replace --the sequence set forth in-- with --the nucleic acid molecule of--.

Replace Claim 165 with:

--Claim 165 A method for overexpressing a recombinant pectate lyase in a cell wherein, the method comprises expressing a vector comprising the nucleic acid molecule of claim 1 or claim 24,

wherein, overexpression is achieved by use of a high activity promoter, a dicistronic vector, or by gene amplification of the vector.--

For Claims 238 and 239, line 1, replace --nucleic acid-- with --nucleic acid molecule--.

Replace Claims 242-245 with the following.

--Claim 242 The isolated, synthetic or recombinant nucleic acid molecule of claim 1, wherein the nucleic acid sequence has at least 95% sequence identity to SEQ ID NO: 77 or SEQ ID NO: 131 and encodes a polypeptide having pectate lyase activity.--

--Claim 243 The isolated, synthetic or recombinant nucleic acid molecule of claim 1, wherein the nucleic acid sequence has at least 97% sequence identity to SEQ ID NO: 77 or SEQ ID NO: 131 and encodes a polypeptide having pectate lyase activity.--

--Claim 244 The isolated, synthetic or recombinant nucleic acid molecule of claim 1, wherein the nucleic acid sequence has at least 98% sequence identity to SEQ ID NO: 77 or SEQ ID NO: 131 and encodes a polypeptide having pectate lyase activity.--

--Claim 245 The isolated, synthetic or recombinant nucleic acid molecule of claim 1, wherein the nucleic acid sequence has at least 99% sequence identity to SEQ ID NO: 77 or SEQ ID NO: 131 and encodes a polypeptide having pectate lyase activity.--

Authorization for this examiner's amendment was given by Jennifer Risser on January 28, 2009.

Allowable Subject Matter

Claims 1, 9, 24, 27, 31, 35, 36, 40, 49, 52, 94, 101, 165, 238-240 and 242-245 are allowed.

The following is an examiner's statement of reasons for allowance:

All allowable claims, Claims 1, 9, 24, 27, 31, 35, 36, 40, 49, 52, 94, 101, 165, 238-240 and 242-245, are limited to isolated nucleic acid molecules, vectors, host cells, and methods of making the encoded protein of the nucleotide sequence of SEQ ID NO: 77 or 131 or encoding the amino acid sequence of SEQ ID NOs: 78 or 132. The utility of said polynucleotides, as encoding a pectate lyase, is credible based on expression in heterologous host cells and analysis by an enzymatic assay (Example 5; Fig 5).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan L. Swope whose telephone number is 571-272-0943. The examiner can normally be reached on M-F; 9:30-7 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Nashed can be reached on 571-272-0934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/SHERIDAN SWOPE/
Primary Examiner, Art Unit 1652